

Infrared Images and Spectra of Comet I/d'Arrest

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We observed comet I/d'Arrest with the SpectroCam 10 mid-infrared imaging spectrograph at the 200-inch Hale Telescope on 1995 August 2, 3, 4. Images were taken through a 1 μm bandpass filter centered at 11.7 μm ; the diffraction-limited angular resolution was 0.7 arcsec (210 km at the comet). The co-added images for each date reveal a prominent core plus an inner coma extended in the anti-sun direction. Simple modeling indicates that the core is due to an unresolved component with a flux of about 700 mJy superimposed on a coma with a 1/r surface brightness gradient and a total flux of about 700 mJy in a 3 arcsec diameter aperture. If the unresolved component is due to the nucleus, then the flux indicates an effective radius of about 1.50 km, assuming a standard thermal model for a slowly rotating nucleus. The 8-13 μm spectra, taken through a 2 arcsec slit, can be fit with a blackbody at temperature 285 ± 15 K. The spectra would be consistent with approximately equal contributions from a slowly rotating nucleus ($T_c \sim 330$ K) and dust radiating at the blackbody temperature of 240 K.

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